

**REMARKS**

Claims 1-58 are pending in this application, with Claims 2-16, 18, 36-38, and 56-58 have been withdrawn as directed to non-elected subject matter. In this Response, Applicants have amended Claim 1, 20, 26, 28, 30-34, 39-40, 42, 44, and 47-49, and have canceled Claims 19 and 35 herein without prejudice. Applicants have also amended withdrawn Claims 2-4, 7-8, 12-16, and 56. Support for the amendments to these claims can be found throughout Applicants' Specification and at page 10, lines 21-26. Support for the amendment to these claims can also be found throughout the original claims. With the entry of this Response, Claims 1, 17, 20-34, and 39-55 are under consideration

Applicants submit that the amendments to the claims do not introduce new matter and do not raise new issues. Claims 1, 39, and 56 are independent claims. In view of the amendments to the claims and the subsequent remarks, Applicants respectfully request rejoinder of all of the withdrawn claims and allowance of all pending claims.

**35 U.S.C. § 112, SECOND PARAGRAPH, REJECTION**

The Office Action rejected independent Claims 1 and 39 and dependent Claims 17, 19-35, and 40-55 under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter regarded by Applicants as the invention. Applicants respectfully traverse these rejections to the extent that these rejections apply to the claims as amended.

***Claims 1 and 39***

The Office Action stated that the term "component" as recited in independent Claims 1 and 39 is ambiguous. (Office Action, p. 3). In this Response, Applicants have amended independent Claims 1 and 39, and the claims dependent therefrom, to recite "one or more terpenes" rather than "a terpene component." In view of the amendments to Claim 1 and 39, Applicants respectfully request that the Examiner withdraw this rejection and allow these claims.

***Claim 35***

The Office Action stated that Claim 35 is ambiguous, and stated that "100% citral and 50% citral and 50% b-ionone are 200%." (Office Action, p. 3). Although Applicants submit that

the skilled person would find the recitation of the various combinations, which are separated by commas, to be clear (*i.e.*, 100% citral, or 50% citral and 50% b-ionone, or 50% d-limonene and 50% bionone, or 50% a-terpineol and 50% b-ionone), Applicants have canceled Claim 35. In view of the cancellation of Claim 35, this rejection is moot and Applicants respectfully request that the Examiner withdraw this rejection.

***Claims 26-27, 30-35, 47, and 48***

The Office Action rejected Claims 26-27, 30-35, 47, and 48 as indefinite because these claims “do not specify the basis of the per cent claimed.” (Office Action, p. 3). Applicants respectfully traverse this rejection to the extent that this rejection applies to the claims as amended. With the entry of this Response, Applicants have canceled Claim 35, and have amended Claims 30-34 and 47-48 to recite “weight by volume.” In view of the amendments to these claims, Applicants respectfully request that the Examiner withdraw this rejection and allow these claims.

As Claims 26-27 recite that the % liquid is on a “w/w” basis, Applicants submit that these claims do specify the per cent claimed. Therefore, Applicants submit that amendments to these claims are not necessary. Applicants respectfully request that the Examiner withdraw this rejection and allow these claims.

***Claim 47***

The Office Action rejected Claim 47 as indefinite because the claim “does not refer to an identifiable reaction.” (Office Action, p. 3). Applicants respectfully traverse this rejection to the extent that this rejection applies to the claim as amended. Applicants have amended Claim 47 to recite “nematicidal composition” rather than “total reaction mixture.” In view of this amendment, Applicants respectfully request that the Examiner withdraw this rejection and allow this claim.

***Claim 49***

The Office Action rejected Claim 49 for the recitation of “true solution.” (Office Action, p. 3). Applicants respectfully traverse this rejection. Applicants respectfully submit that the term “true solution” is a term known in the art. For example, Applicants enclose a print out from each of three different web sites. First, the Tutor Vista web site characterizes true solutions, colloidal

solutions, and suspensions, explaining that true solutions have particle size of less than  $10^{-7}$  cm, which particles are invisible to the naked eye and do not settle. (See <http://www.tutorvista.com/content/chemistry/chemistry-i/matter/colloids.php>).

| Difference between true solutions, suspensions and colloids |  |   |                            |
|---|--|---|----------------------------|
| Property  | True solutions   | Colloidal solutions                                       | Suspensions                |
| Particle size   | Less than $10^{-7}$ cm                                       | Between $10^{-5}$ and $10^{-7}$ cm                        | Greater than $10^{-5}$ cm  |
| Visibility of particles                                     | Invisible to naked eye not visible under powerful microscope | Invisible to naked eye. Visible under powerful microscope | Easily visible             |
| Sedimentation of particles                                  | Do not settle down   | Settle down under high centrifugation                     | Settle down due to gravity |
| Filtration through filter paper                             | No residue is formed   | No residue is formed                                      | Residue is formed          |

Second, the WikiAnswers web site explains:

A true solution is where you can't differentiate between the solute and solvent molecules even at the microscopic level. It is completely homogeneous. For example, milk seems to be completely homogeneous but it isn't. Milk is actually has a suspension of fat molecules which are not dissolved at all. A true solution is a homogeneous solution in which the solute particles have diameters less than  $10^{-7}$  cm. The solute particles are of molecular dimensions. The particles are invisible even under powerful microscopes. For example, sodium chloride in water is a true solution. Most ionic compounds form true solutions in water. Organic compounds like sugar and urea also form true solutions in water.

(See [http://wiki.answers.com/Q/What\\_is\\_a\\_true\\_solution\\_in\\_chemistry](http://wiki.answers.com/Q/What_is_a_true_solution_in_chemistry)).

Third, the Answers.com web site states: "In a true solution the particles of dissolved substance are of molecular size and are thus smaller than colloidal particles; in a coarse mixture (e.g., a suspension) the particles are much larger than colloidal particles. Although there are no precise boundaries of size between the particles in mixtures, colloids, or solutions, colloidal particles are usually on the order of  $10^{-7}$  to  $10^{-5}$  cm in size." (See Columbia Encyclopedia definition at <http://www.answers.com/topic/colloid>).

Lastly, Applicants direct the Examiner's attention to page 19, lines 16-29, of the Specification, which explain how a true solution of terpene in water can be obtained.

In view of the art's familiarity with this term and Applicants' own teachings, Applicants respectfully submit that the skilled person would recognize the metes and bounds of the "true solution" as recited in Claim 49. As the recitation of "true solution" is not indefinite, Applicants respectfully request that the Examiner withdraw this rejection and allow this claim.

**35 U.S.C. § 112, FIRST PARAGRAPH, REJECTION**

The Office Action rejected independent Claims 1 and 39 and dependent Claims 17, 19-35, and 40-55 under 35 U.S.C. § 112, first paragraph, as allegedly failing to "reasonably provide enablement for ANY terpene components, which can be specific terpene compounds, or derivatives, combinations, essential oils, and compositions of added ingredients to constituted a component." (Office Action, p. 3). Applicants respectfully traverse this rejection to the extent that this rejection applies to the claims as amended. Claims 19 and 35 have been canceled herein.

The M.P.E.P. teaches that the purpose of the enablement requirement "is to ensure that the invention is communicated to the interested public in a meaningful way." (M.P.E.P. § 2164). However, a patent need not teach, and preferably omits, what is well known in the art. (M.P.E.P. § 2164, citing *In re Buchner*, 929 F.2d 660, 661 (Fed. Cir. 1991)). Therefore, any analysis of whether a particular claim is enabled by the disclosure in an application requires a determination of whether that disclosure, when filed, contained sufficient information regarding the subject matter of the claims so as to enable one skilled in the pertinent art to make and use the claimed invention without undue experimentation. (M.P.E.P. § 2165, citing *United States v. Telectronics, Inc.*, 857 F.2d 778, 785 (Fed. Cir. 1988)). The test of enablement is not whether any experimentation is necessary, but whether, if experimentation is necessary, it is undue. (M.P.E.P. § 2164.01, citing *In re Angstadt*, 537 F.2d 498, 504 (CCPA 1976)). The fact that experimentation may be complex does not necessarily make it undue, if the art typically engages in such experimentation. (M.P.E.P. § 2164.01). As the amount of guidance or direction needed to enable the invention is inversely related to the amount of knowledge in the art as well as the predictability of the art (M.P.E.P. § 2164.03), whether the claims are enabled is a question of law based on underlying factual findings. (*In re Vaeck*, 947 F.2d 488, 495 (Fed. Cir. 1991); *Atlas Powder Co. v. E.I. duPont de Nemours & Co.*, 750 F.2d 1569, 1576 (Fed. Cir. 1984)).

Applicants note that the Examiner has the initial burden to establish a reasonable basis to question the enablement provided for the claimed invention. (*In re Wright*, 999 F.2d 1557, 1562

(Fed. Cir. 1993) (explaining that the examiner must provide a reasonable explanation as to why the scope of protection provided by a claim is not adequately enabled by the disclosure)). A specification that contains a teaching of the manner and process of making and using an invention in terms that correspond in scope to those used in describing and defining the claimed subject matter must be taken as being in compliance with the enablement requirement of 35 U.S.C. §112, first paragraph, unless there is a reason to doubt the objective truth of the statements contained therein which must be relied on for enabling support (M.P.E.P. § 2164.04).

As amended, Claim 1 currently recites “A method of killing nematodes, said method comprising the step of applying an effective amount of a nematicidal composition comprising one or more terpenes, wherein the nematicidal composition comprises hollow glucan particles which encapsulate the one or more terpenes, and wherein the one or more terpenes comprises thymol.”

As amended, Claim 39 currently recites “A method of preparing a nematicidal composition comprising hollow glucan particles encapsulating one or more terpenes, said method comprising the steps of; a) providing one or more terpenes, wherein the one or more terpenes comprises thymol; b) providing hollow glucan particles; c) incubating the one or more terpenes with the glucan particles under suitable conditions for terpene encapsulation; and d) recovering the glucan particles encapsulating the one or more terpenes.”

Both independent Claims 1 and 39, as amended, recite one or more terpenes comprising thymol. Thus, the claims do not encompass “any terpene components” as stated by the Office Action. In view of the amendments to the claims, Applicants respectfully submit that the Specification enables the skilled person to practice the invention commensurate in scope with the claims, and to do so, without undue experimentation. Therefore, under the law, the currently pending claims are fully enabled. As such, Applicants respectfully request that the Examiner withdraw this rejection and allow these claims.

### **35 U.S.C. § 102 REJECTIONS**

The Office Action rejected Claim 1 as allegedly being anticipated under 35 U.S.C. § 102(a) and § 102(e) by Franklin (WO 2003/020024) (herein “Franklin”). The Office Action also rejected Claims 1 and 17 as anticipated under 35 U.S.C. § 102(b) by Bessette (WO 2000/053020) (herein “Bessette”). The Office Action also rejected Claims 1 and 17 as anticipated under 35

U.S.C. §102(b) by Calvet 2001, or Oka *et al.*, 2000, or Soler-Serratos *et al.*, 1996, or Sangwan *et al.*, 1985, or Kokalis-Burrell *et al.*, 1999, or Kokalis-Burrell *et al.*, 2002, or Estevan *et al.*, 2001, or Bausek *et al.*, 1994. Applicants respectfully traverse these rejections to the extent that the rejections apply to the claims as amended.

A proper rejection of a claim under 35 U.S.C. § 102(b) requires that a single prior art reference disclose each and every element of the claim. Alternatively, anticipation requires that each and every element of the claimed invention be embodied in a single prior art device or practice. For anticipation, there must be no difference between the claimed invention and the reference disclosure, as viewed by a person of ordinary skill in the field of the invention. (*See, e.g., W.L. Gore & Assoc., Inc. v. Garlock, Inc.*, 220 U.S.P.Q. 303, 313 (Fed. Cir. 1983). Thus, in making a rejection under 35 U.S.C. § 102, the Patent Office is burdened with establishing that the cited art teaches each and every element of the claims.

As amended, Claim 1 recites “A method of killing nematodes, said method comprising the step of applying an effective amount of a nematicidal composition comprising one or more terpenes, wherein the nematicidal composition comprises hollow glucan particles which encapsulate the one or more terpenes, and wherein the one or more terpenes comprises thymol.” Claim 1 has been amended, in part, to recite language that was previously recited in Claim 19. As the Office Action did not reject Claim 19 as anticipated by any of the cited references, Applicants respectfully submit that none of the cited references teaches or discloses each and every element of Claim 1 as amended.

As the cited references fail to teach or disclose each and every element of amended Claim 1, Applicants respectfully submit that each of the cited references fails to anticipate Claim 1, and the claims that depend therefrom, including Claim 17. As such, Applicants respectfully request that the Examiner withdraw these rejections and allow these claims.

### **35 U.S.C. § 103 REJECTIONS**

The Office Action rejected independent Claims 1 and 39 and dependent Claims 17, 19-26, 30, 32-34, 40-43, and 50-55 under 35 U.S.C. §103(a) as allegedly being unpatentable over Bessette in view of Pannell (EP 0242135) (herein “Pannell”). Applicants respectfully traverse this rejection to the extent that the rejection applies to these claims as amended. Claims 19 and 35 are canceled herein.

Under 35 U.S.C. § 103(a), the Patent Office bears the burden of establishing a *prima facie* case of obviousness. A *prima facie* case of obviousness requires: (1) that there be a suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the teachings of reference or to combine the teachings of multiple references; (2) that there be a reasonable expectation of success; and (3) that the prior art reference, or references when combined, teach or suggest all of the elements of the claim. (*See, e.g.*, M.P.E.P. § 2143). The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art and cannot be based on Applicants' disclosure. (*See, e.g., In re Vaeck*, 947 F.2d 488 (Fed. Cir. 1991); *In re Fine*, 87 F.2d 1071, 1074 (Fed. Cir. 1988)). Furthermore, rejections based on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be explicit analysis including some rational underpinning to support the legal conclusion of obviousness. (*K.S.R. Int'l Co. v. Teleflex, Inc.*, 550 U.S. 14 (2007) (citing *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006))). If the references do not teach each and every claimed element, then a finding of obviousness fails.

Applicants respectfully submit that the combination of cited references fails to satisfy this burden. The Office Action stated that Bessette discusses the "use of methods of nematode control utilizing essential oils with reduced non-target toxicity," and that the essential oils "include thymol with excipient components, including microcapsules." (Office Action, p. 6). Acknowledging that Bessette does not teach or suggest "specific use of yeast formulae," the Office Action relied on Pannell. The Office Action stated that Pannell teaches "the advantages of the environmentally safe use of yeast microcapsules with enhanced stability, having less lipid content," and that the "microcapsules are yeast, Baker's yeast, of whole cells." (Office Action, p. 6). The Office Action further stated that "the encapsulated material includes terpene and terpene components." (Office Action, p. 6).

In view of these teachings, the Office Action concluded that it would have been obvious to the skilled person "desiring to utilize pest control means, to use any of the art recognized means, as of Bessette, modified as desired to increase stability, dispersibility, compatibility of ingredients, processing ease, & reduced toxicity to handlers." (Office Action, p. 7). Furthermore, the Office Action stated that "it would have been obvious to try thymol and other terpenes of BESSETTE in the PANNELL microcapsules with expectation of success of encapsulation of any

of the essential oils, and application to nematodes with expectation of control.” (Office Action, p. 8). For at least the reasons provided below, Applicants respectfully submit that the combination of Bessette and Pannell fails to teach or suggest each and every element of the currently pending claims.

In the discussion that follows, Applicants are not arguing against the references individually, as the Office Action relied on a combination of references to support the obviousness rejection. Rather, Applicants are merely highlighting the failure of the cited references to teach or suggest each and every claimed element, which is a necessary predicate to maintaining the obviousness rejection.

As amended, Claim 1 “A method of killing nematodes, said method comprising the step of applying an effective amount of a nematicidal composition comprising one or more terpenes, wherein the nematicidal composition comprises hollow glucan particles which encapsulate the one or more terpenes, and wherein the one or more terpenes comprises thymol.”

As amended, Claim 39 recites “A method of preparing a nematicidal composition comprising hollow glucan particles encapsulating one or more terpenes, said method comprising the steps of; a) providing one or more terpenes, wherein the one or more terpenes comprises thymol; b) providing hollow glucan particles; c) incubating the one or more terpenes with the glucan particles under suitable conditions for terpene encapsulation; and d) recovering the glucan particles encapsulating the one or more terpenes.

The combination of Bessette and Pannell does not teach or suggest Applicants’ independent Claims 1 and 39. Applicants direct the Examiner’s attention to Pannell, which describes a method of encapsulation utilizing an *intact* microbe. For example, Pannell states:

The present invention provides a method of producing an encapsulated material comprising treating a grown *intact* microbe such as a fungus, bacterium or alga by contiguous contact with an encapsulatable material in liquid form, said microbe having a microbial lipid content of significantly less than 40% by weight, said encapsulatable material being capable of diffusing into the microbial cell *without causing total lysis* thereof, and said treatment being carried out in the absence of an organic lipid-extending substance (as defined in European Patent Specification No. 0085805B) as solvent or microdispersant for the encapsulatable material and in the absence of a plasmolyser, whereby the material is absorbed by the microbe by diffusion



across the microbial cell wall and is retained passively within the microbe.

(page 2, lines 28-35) (emphasis added). Furthermore, Pannell explains:

The microbe is in *grown form*, i.e. it has been harvested from its culture medium, and *is intact*, i.e. *not lysed*. Suitably the microbe is *alive*, at least at the commencement of the treatment; however, a microbe which has been subjected to conditions (such as by irradiation of the microbe) to destroy its ability of propagate may be employed.

(page 2, lines 41-44; see also Claim 1 and Abstract for references to an *intact* microbe) (emphasis added). Thus, Pannell specifically teaches a method of encapsulation in which an *intact* microbe is incubated with a material to result in an encapsulation. To this end, all of the Examples provided by Pannell require an *intact* microbe.

The *intact* microbe of Pannell is not a teaching or suggestion of a *hollow glucan particle*. Therefore, the combination of Bessette and Pannell fails to provide a teaching or suggestion of Applicants' currently pending claims, which recite a nematocidal composition comprising *hollow glucan particles* encapsulating one or more terpenes. Rather, the combination of Bessette and Pannell teaches away from using anything other than an *intact*, and preferably, *alive* microbe to effectuate an encapsulation. For this reason alone, the Office Action failed to establish a *prima facie* case of obviousness for the currently pending independent claims. Applicants respectfully request that the Examiner withdraw this rejection and allow these claims.

Furthermore, Applicants respectfully traverse the Office Action's statements that there are "no non-obvious and/or unexpected results" and that "Applicant has not provided any objective evidence of criticality, nonobvious or unexpected results that the administration of the particular ingredients' or concentrations provides any greater or different level of prior art expectation as claimed." (Office Action, p. 8). Applicants direct the Examiner's attention to page 13 (line 11) through page 16 (line 18) of the Specification. There, the Specification explains that nematocidal compositions comprising hollow glucan particles provide several advantages, including but not limited to, maximizing terpene payload, minimizing unencapsulated payload, and controlling payload stability and release kinetics. Furthermore, in Example 18 of the Specification, Applicants demonstrate high levels of terpene loading. For instance, the particle SAF Mannan demonstrates loading of up to 133% w/w, which is double or nearly double the

loading demonstrated by the cited references, Bessette and Pannell. Even the particles derived from Baker's yeast demonstrate loading at levels as high as the best examples of Bessette and Pannell. In view of the Pannell's steadfast teaching of the use of an *intact*, preferably *alive*, microbe, such an unexpected result generated by Applicants' hollow glucan particles constitutes a secondary consideration and supports a finding of nonobviousness.

The Office Action has not provided a combination of references that teach or suggest all the elements of the currently claimed invention. Even if the references disclosed each of the claimed elements, which they do not, the Supreme Court in *KSR* confirmed that it is legally insufficient to merely point to the various recited elements. Instead, the Office Action must identify the basis for the alleged modification or combination by one of ordinary skill to arrive at the claimed invention.

As is clear from cases such as *Adams*, a *patent composed of several elements is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art*. Although common sense directs one to look with care at a patent application that claims as innovation the combination of two known devices according to their established functions, it can be important to identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does. This is so because inventions in most, if not all, instances rely upon building blocks long since uncovered, and claimed discoveries almost of necessity will be combinations of what, in some sense, is already known.

(*KSR* at \*37-\*38) (emphasis added). To this end, Applicants note that the combination of Bessette and Pannell fails to provide the skilled person with any motivation to modify the teachings of either reference to successfully arrive at the claimed invention, which comprises *hollow glucan particles*. Absent explicit reasoning to support the basis for such a modification or combination, the alleged modification or combination cannot support a *prima facie* obviousness rejection.

Therefore, the combination of Bessette and Pannell fails to render as obvious Applicants' independent Claims 1 and 39. As "dependent claims are nonobvious under section 103 if the independent claims from which they depend are nonobvious" (*In re Fine*, 5 U.S.P.Q. 2d 1569, 1600 (Fed. Cir. 1988)), this combination also fails to render obvious dependent Claims 17, 20-

26, 30, 32-34, 40-43, and 50-55. Applicants respectfully request that the Examiner withdraw this rejection and allow these claims.

#### **DOUBLE PATENTING REJECTION**

On the ground of nonstatutory obviousness-type double patenting, the Office Action provisionally rejected Claims 1, 17, 19-35, and 39-55 as allegedly being unpatentable over Claims 1-31, 35-47, 52-66, 69, and 82 of co-pending U.S. Patent Application No. 11/597,116 (U.S. Patent Application Publication No. 2010/0040656).

On the ground of nonstatutory obviousness-type double patenting, the Office Action provisionally rejected 1, 17, and 19-35 as allegedly being unpatentable over Claims 1-17, 22-31, and 35-45 of co-pending U.S. Patent Application No. 10/488,130 (U.S. Patent Application Publication No. 2004/0248764).

With the entry of this Response, Applicants have canceled Claims 19 and 35. Moreover, Applicants respectfully submit that until such time that the Examiner finds allowable subject matter, a complete determination regarding the merits of these provisional double patenting rejections cannot be made. But, if the Examiner finds allowable subject matter in one or both of the cited applications, Applicants will then consider the filing of a terminal disclaimer.

#### **CONCLUSION**

The foregoing is a complete response to the Non-Final Office Action mailed October 15, 2010. Applicants respectfully submit that at least Claims 1-18, 20-34, and 36-58 are patentable. Early and favorable consideration is solicited. Applicants file this Response solely to facilitate prosecution. Applicants reserve the option of prosecuting the restricted claims at another time or requesting rejoinder of the restricted claims once allowable claims are found.

If the Examiner believes there are other issues that can be resolved by a telephone interview, or that there are informalities that remain in the application that may be corrected by the Examiner's amendment, then a telephone call to the undersigned attorney at (678) 420-9452 is respectfully solicited.

With this Response, Applicants also submit a Petition for an Extension of Time to extend the time period of reply by one-month, *i.e.*, to February 15, 2011, and a credit card payment. The credit card payment is in the amount of \$130, which represents the large entity fee pursuant to 37

C.F.R. § 1.17(a)(1) for a one-month extension of time. Applicants submit that this is the correct amount due; however, Applicants authorize the Commissioner to charge to Deposit Account No. 14-0629 any additional fees that may be required to effect the consideration and entry of this Response.

Respectfully submitted,

/Rebecca C.E. McFadyen, Reg. No. 57,952/  
Rebecca C.E. McFadyen, J.D., Ph.D.  
Registration No. 57,952

BALLARD SPAHR LLP  
Customer Number 23859  
(678) 420-9300  
(678) 420-9301 (fax)